NARRATIVE REPORT

STILLWATER WILDLIFE MANAGEMENT AREA

JANUARY - APRIL
1953

PERSONNEL

LeRoy W. Giles - - - - - - - - - - - - - - - Refuge Manager
David B. Marshall - - - - - - - - - - - - - Biologist
Illa E. Cress - - - - - - - - - - - - - - - Clerk (Typing)
Arthur V. Huff - - - - - - - - - - - - - - - Super. Automotive Mechanic
Manuel Olano - - - - - - - - - - - - - - - - Automotive Mechanic (General)
William H. Ogden - - - - - - - - - - - - - - Automotive Mechanic (General)
Earl W. Nygren - - - - - - - - - - - - - - - Maintenance Supervisor

I N D E X

I GENERAL

A. Weather Conditions

The weather during the period has, in a sense, been abnormal. The winter was dryer than normal, calmer than normal, warmer than normal and -- longer than normal. At present we are having one cold snap right after another, with the result that marsh and desert plants are extremely slow in starting new growth. Comparatively speaking, the winter was mild even though temperatures have tended to be consistently cool. This condition was reflected in our overwintering waterfowl population which was markedly larger than in winters characterized by long periods of subzero temperatures.

Weather summaries and averages are tabulated below:

Month	Precip.	Miles of Wind	Max. Temp.	Min. Temp.	Mean	Evap.
January	.02	1,503.9	69	11	39.8	1.18
February	T	1,780.9	71	7	36.5	3.24
March	.30	2,275.3	78	11	42.5	6.24
April	.16	2,650.4	83	16	49.0	5.72
Totals	.48	8,210.5	83	7	41.9	16.38
46 Year Average	2.19	10,603.7	81.2	- 4.8	39.4	14.13

B. Water Conditions

Despite a below normal snow pack in the Sierras we are anticipating another "long" water year in the Stillwater Marsh. Lahontan Reservoir was practically full at the start of the spring run-off so that there is actually a temporary surplus of water. Because of this and because the local farmers have had 2 good years in which no effort was made to conserve water, we are getting more water than normally could be expected. At the first of May we were releasing 108 second feet from Stillwater Point Reservoir in order to keep up with inflow. In 1950 and 1951, more nearly normal years, the rates of discharge on May 1 were 45 and 60 cfs. respectively, or only about half of the present rate.

Lahontan Reservoir had the highest winter carry-over of irrigation water since its construction. On January 1 the Reservoir held 214,340 acre feet as compared to a maximum capacity of 290,000 acre feet. By April 15 storage had increased to 280,128 AF. Water would have gone over the top of the flashboards by the end of April so dumping was started on April 15 to prevent this. The rate of initial spillage was 500 cfs.

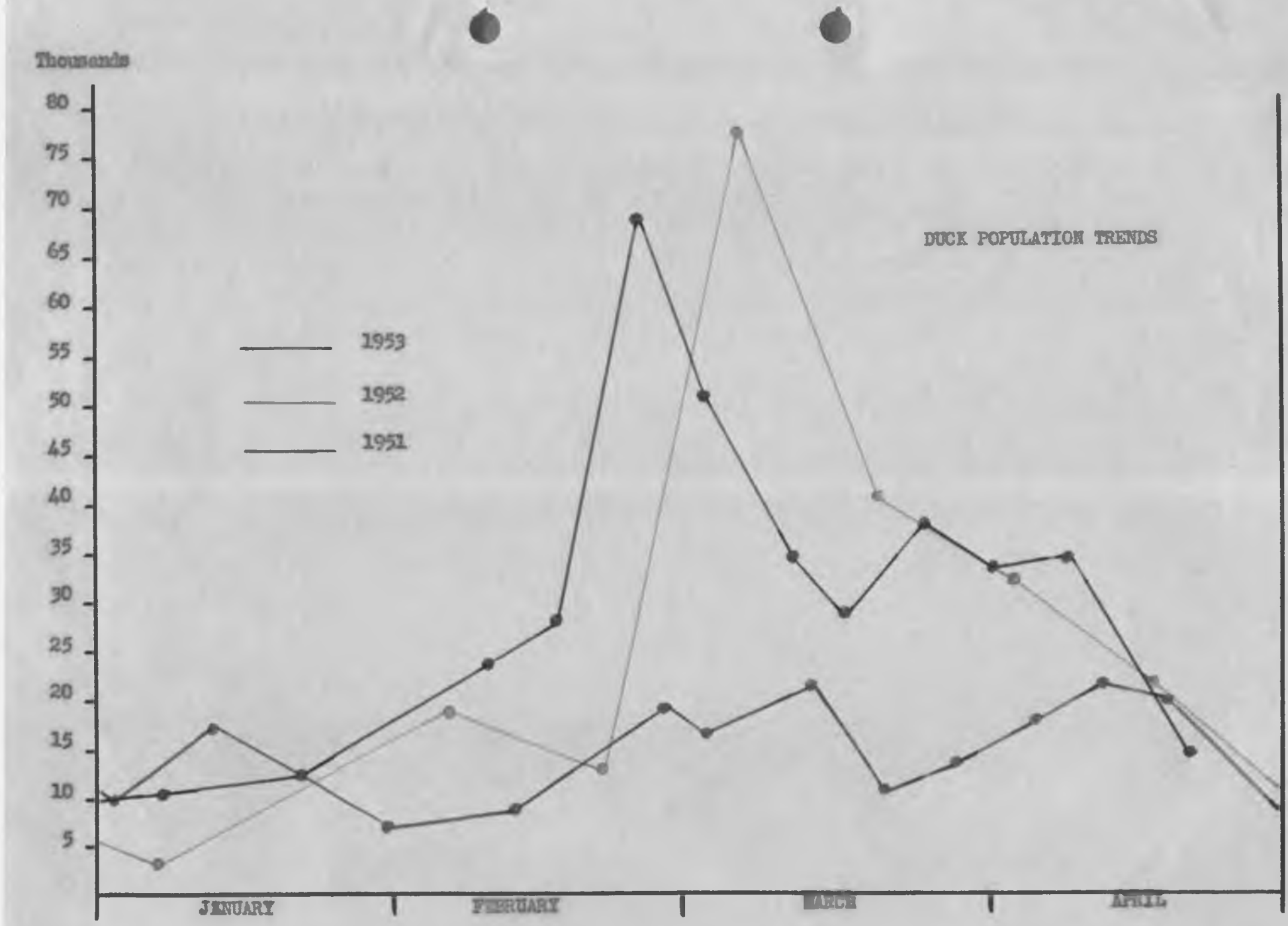
We had hoped for a brief time that the Carson Sink would become dry this year. If it did much of our botulism problem would disappear. With the dumping from Lahontan, however, this seems to be out of the question. Inflow into the Sink, via the Carson River, 500 second feet of spillage plus 300 second feet of power water, will prolong the life of this temporary lake. Even though the spillage is of short duration, which seems likely, there is little probability of much water loss in the Sink before July 1 which was the starting date of the botulism epidemic last year.

Water conditions in the Stillwater Marsh have been somewhat unusual considering the floods of the past two years. Water levels this spring dropped down close to what used to be normal. This was due in part to purposeful manipulation. The decreased level seems to be having beneficial effects. The nesting waterfowl population is concentrated in somewhat different areas but, at the same time, is showing a general increase in number. It is hoped, too, that saltgrass and other marginal plants, which have all but drowned-out in the past two years, will make some recovery.

When water inflow finally tapered off to a normal winter low, in late December, the level of Stillwater Point Reservoir was permitted to drop as low as possible. Then, on January 10, the outlet gate was closed. A few days later, after further drainage of downstream units, flashboards were placed in Structures 2, 3 and 4, completely impounding the waters of these units. Checking this water flow permitted the drainage of Pool 3877 (the Goose Lake Unit) where the inverted siphon is being constructed and also cut off the major source of water for the lower marsh. As a result water levels in the lower marsh dropped throughout the winter. On April 6 the level at the 3-way structure (No. 16) was 3875.58, the lowest in more than a year. Since April 6 the water has been rising due to increased flow through the Canvasback Gun Club. It will probably rise even more when the construction of the siphon is finished and the east side structures are opened to permit the release of water now being impounded.

C. Fires

On January 19 marsh growth in the Nutgrass Unit was burned off. State Waterfowl Technician Fred Wright collaborated in this work. The Nutgrass Unit had been dry for some time and it was hoped that the fire might penetrate the root zone, particularly in the heavy interior stands of cattail. A clean burn was accomplished, however, there was no evidence of any root burn. The root zone of the deeper marsh, even though well above the mineral soil level, was too wet to burn. It is believed that the standing mat of dead vegetation, by shielding the soil from the sunlight and air movement, prevented evaporation and resulted in the retention of large quantities of moisture in the organic material of the root zone. This burning


Thousands
80
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DUCK POPULATION TRENDS
1953
1952
1951
JANUARY
FEBRUARY
MARCH
APRIL

would have been delayed until after the advent of dry spring winds except that it was necessary to utilize the Nutgrass Unit as a dumping area for excess water in other parts of the marsh where construction is under way. It is doubtful whether even this would have been effective. It appears that at the present time any successful root burn will have to be preceded by a preliminary removal of the top vegetation and a prolonged exposure to dry weather and wind movement.

The area covered by the burn included most of the marsh in the unit. Of the 2,378 acres of vegetation present an estimated 2,000 was burned off.

II WILDLIFE

A. Migratory Birds

1. Population and Behavior

As can be seen by the accompanying population graph, for the second time our duck population has jumped to a sudden high peak during the middle of the period. Although this peak was not as great as that of last year, total duck use days for the period were roughly 200,000 more than 1952. The pintail was the number one duck. It accounted for about 32% of the total duck use days. Green-winged teal use days were close behind the pintail, and amounted to 31% of the total. Number three was the shoveller with 18% of the duck use day total. This is quite similar to 1952, when 33% of the duck use days were pintail; 22% green-winged teal and 22% were shoveller.

Table I. Comparative duck usage on the four sections of the Stillwater Wildlife Management Area based on percent of total duck use days for the period.

Section	1952	1953
Refuge	9%	3%
Hunting Area	74	64
Pelican Island Area	12	30
Indian Lakes Area	5	3

As can be seen from Table I, duck use of the refuge portion of the Area mounted to but 3% of the total duck use days, while Pelican Island took care of 30% of the use days and the State hunting area of the Stillwater Marsh, 64%. For the first time we obtained substantial duck usage of the sand dune area below Pintail Bay. It accounted for 8% of the use days for the Stillwater Marsh hunting area, or 5% of the use days for the entire area. Also used was the south shore

of the Carson Sink from the Pelican Island Marsh to the outlet of the sand dune area. Utilization of this area is lumped in with Pelican Island on the table. On this basis it accounted for 24% of the Pelican Island use days, or 7% of the total duck use days for the Area. Duck usage of the south edge of the Sink was first noted last fall, but it was assumed botulism herding was the cause. What attracted ducks to this barren area this spring is a mystery to us. Censusing of the south edge of the Carson Sink presents a problem, as it cannot be reached by jeep because of high sand dunes.

Although ice was present in many ponds during much of February it did not appear that it covered sufficient area to impair usage of the area.

So far no mention has been made of geese, swans and other waterbird groups. The individual accounts below cover these species.

Whistling Swan. Swan numbers were back up to 1951 numbers this year. A peak of 4,100 occurred before this period in December after which numbers declined. By the first of March these birds were practically all gone. They utilized Pelican Island in greatest numbers.

Canada Goose. The honker situation here never seems very encouraging. While up to 2,000 were present in January of 1952, 1200 was the greatest number recorded this period. As usual, by late March practically all the honkers that remained were a few breeders and "loafers". The breeding population stands at around 30 pairs, which is the same as 1951 and 1952. At the end of the period no broods had been seen. One nest with four eggs was found atop a muskrat house on April 7 and four nests atop muskrat houses were spotted from the air on April 17. Eggs could be seen in three of these while the goose refused to flush from the fourth. Honker nesting territories seem rather evenly distributed throughout the entire Stillwater Marsh excepting the southwest side. Only one pair has been recorded at Pelican Island. Use of the area by wintering flocks was for the most part restricted to the refuge and Pelican Island.

Mallard. Whereas over 7,000 mallards were recorded in February of last year, 1,700 was the top number this year. However, the nesting population looks quite promising. Mallard broods were first noted on April 21 when two were seen. This seems unusually early.

Gadwall. Nearly 5,000 were present on February 25. Last year 1,400 was the greatest number found.

Baldpate. This species does not make much of a showing here. On February 25 nearly 1,400 were estimated present as compared to a peak of 950 on March 20 of last year.

Pintail. Use days by this species was practically the same as for 1952, which is considerably above 1950 and 1951. Although this year's pintail peak did not reach that of last year, numbers during the rest of the period were generally above last year.

Green-winged Teal. Green-wings peaked out after the pintail in late March and early April. Although the peak was about the same as last year, total use days was considerably higher.

Cinnamon Teal. As in previous years, this species began coming in on schedule in mid-February and building up in numbers through the period. For the second year, there has been an increase in numbers at the end of the period. Some were well along with nesting activities at the close of April.

Shoveller. After three spring periods of increased shoveller numbers, we have a drop in both the peak and use days this spring.

Redhead. Our number one nester was just beginning to show up at the end of the period. This is the usual situation.

Canvasback. "Cans" pulled out early this year. Two peaks in their numbers occurred. One was on January 8 with 550 birds and the other on February 25 with 500. A peak of 700 was recorded on March 6 of 1952.

Scaup. Less than 100 scaups were recorded. These were present mostly in the Indian Lakes, as in previous years.

American Golden-eye. Numbers of this species are believed to have never exceeded 50, which is still considerably above last year's 15. These birds were to be found in canals, flooded alkali weed areas and the Indian Lakes.

Bufflehead. Bufflehead numbers ran below the peak of 225 last year but above 1951's peak of 100. This species frequents the same habitat as the previously mentioned species.

Ruddy Duck. Not all of the large numbers of ruddies that rafted up in our largest bodies of water in April during previous years were picked up this year. Possibly they utilized the flooded Carson Sink. Nevertheless, many frequented alkali weed areas. A peak of 2,200 was reached on April 1. This compares to last year's peak of 4,000 on April 3.

Mergansers. The hooded merganser was recorded for the first time since November, 1951. American mergansers were present April 1 with a peak of 900 on February 25. This follows the pattern of previous years.

Coot. Mud hen numbers reached almost 13,000 which is considerably below the peak of 17,000 in 1952 and 20,000 in 1951.

However, on a use day basis the coot did as well as ever. In 1952 but 300 were present in January while this year January numbers didn't get below 3,000.

Grebes. There is little change from last year insofar as grebes go. The Western grebe, Stillwater's most conspicuous grebe, showed up in real numbers the first of April and soon engaged in nest building activities.

Pelicans and Cormorants. One or more cormorants remained in the Stillwater Marsh all winter. A greater than normal number of cormorants were present in the marsh and elsewhere in the valley in mid-April. Pelican use of the marsh was almost double that of last year.

Herons, Egrets and Ibis. Three nesting colonies of these species are present in the Management Area portion of the Stillwater Marsh. This is the same number as last year. However, in one case the location has changed. No herons were seen in the colony that formerly occupied the Nutgrass Unit. Instead a colony is present for the first time in hardstem bulrush at the south end of Pintail Bay. It is difficult to determine the size of the two older rookeries as the nests are scattered over a wide area. Formerly the nests were concentrated in hardstem bulrush stands. In most cases the bulrush has died and the birds are nesting in cattail around the edge of the former hardstem bulrush areas. As usual, the rookeries are being occupied jointly by snowy egrets, great blue herons, white-faced glossy ibis and black-crowned night herons. Both the snowy egrets and ibis came in about the same time as last year.

Shorebirds. Shorebird usage was concentrated at Pelican Island and along the edge of the Carson Sink. Because this area can be covered adequately from the air only, it was impossible to obtain complete shorebird data. An airplane flight made April 11 showed the presence of approximately 10,000 avocets along the edge of the Carson Sink. This is by far the greatest number ever recorded here in the spring. A smaller concentration appeared last April at Pelican Island during the same period. In addition the usual concentrations of peeps and dowitchers passed through. Other shorebirds noted included black-bellied plovers, greater yellow-legs and marbled godwits plus such breeders as the killdeer, snowy plover and black-necked stilt.

Gulls and Terns. There is little change from last year in the activities of this group. California gull nesting was under way at the end of the period on the island in the Stillwater Point Reservoir. Some eggs had been laid as early as April 17. Terns came in about 10 days late, as they weren't seen until the last few days of the period.

2. Food and Cover

Our May-August 1952 narrative discussed at length food and cover conditions as a result of the 1952 growing season. At present it is too early to discuss the 1953 growing season. Briefly, food conditions in the Stillwater Marsh are very poor while the reverse is true of the smaller Pelican Island Marsh.

Many former dense stands of cattail of the Stillwater Marsh were open enough by the end of the winter to permit waterfowl usage. Last year's growth was puny in such areas and muskrat cuttings were correspondingly more effective. Mallards and coots in particular have been using these areas of cattail stubble. Why, we don't know, as seemingly there is nothing for a duck to eat in a rotten decaying mass of cattail. In addition, the mallards established nesting territories in these areas even at considerable distance from land. As loafing bars they use muskrat houses and probably nest on the houses as well. Mallard nests were found on muskrat houses last year.

3. Botulism

As an aftermath to last summer's botulism epidemic, a few ducks died early this spring at Pelican Island. Sick ducks were observed from mid-February through March. The outbreak reached a peak in mid-March when 50 dead and 50 sick ducks were observed in the vicinity of Battleground Point. An airplane flight made March 17 showed this to be the only affected area. It is estimated a total of 300 ducks were lost.

4. Lead Poisoning

None observed.

B. Upland Game Birds

An occasional ring-necked pheasant is observed in the East and Paiute Pasture or along the Hunter Road. California quail occur sparingly on unfenced private land along the Carson River. California quail are also occasionally seen about the Indian Lakes.

C. Big Game Animals

None observed.

D. Fur Animals, Predators, Rodents and Other Mammals

1. Fur Animals

Our muskrat population went through the winter with no noticeable losses other than trapping. The rats seem to have distributed themselves over the entire marsh. There are thriving populations in areas that have practically no vegetation other than saltgrass. Large numbers are living in bank burrows as well as in houses.

2. Predators

There is practically no change in the coyote situation, as poison bait is keeping their numbers down to little more than the minimum required for survival.

E. Predaceous Birds

An above average number of predaceous birds inhabited the Area this period. These birds consisted of ravens, bald eagles and golden eagles which fed on botulism victims at Pelican Island. Over 50 golden and bald eagles were observed from the airplane at Pelican Island on March 3.

F. Fish

Of interest in this category are the large numbers of carp that were eliminated by the partial drainage of the Goose Lake Unit (Pool 3877). When the waters of this unit dropped to a depth of only a few inches several hundred pelicans moved in. Fish too large for them later died, presumably because the water became exceptionally brackish.

The Nevada State Fish and Game Commission has finally taken an active interest in our bass fishing and is conducting investigations to determine how this resource might best be managed.

III DEVELOPMENT AND MAINTENANCE

A. Physical Development

Road Construction. One of our big jobs last fall, work on the 6-mile long North Road, was continued until mid-January when it was postponed temporarily. The fill and grading of this road had been completed except for a short segment near the west end where a water crossing was involved. The P&H dragline cast a basal fill for this segment, and this has been permitted to dry thoroughly

before the final fill is made. The 8-yard carryall will be used to complete this job.

Dike Construction. The haul of rock riprap to the Nutgrass Dike was continued until January 30. Placement of rock on the north side of the dike was completed except for a 3000-foot segment where damage from possible flood waters would not be serious. An additional 1,600 feet of the south side of the dike has also been riprapped. The pressing need for work on our pasture units as well as need for additional help on the inverted siphon construction forced us to postpone this riprap job.

During the latter part of the period we started and completed the job of riprapping "C" Dike with rock. This work was undertaken sporadically, whenever men could be spared from other jobs for truck driving and operating the loading unit. "C" Dike, which is 2,700 feet in length, was riprapped on one side only. The rock was dumped on top of the dike then shoved over the edge with a D-6 angle dozer.

Canal Excavation. The Lorain dragline has completed the job of building up the banks of the Lead Lake Canal along the segment which forms the west approach to the inverted siphon. Work has been started on a breakwater, built of scrap lumber, along the outside toe of the newly constructed banks. This breakwater is designed to prevent erosion from wave action until vegetation can be started on the banks. After Pool 3877 (Goose Lake Unit) has been reflooded we are planning to sow alkali bulrush (Scirpus paludosus) seed on the submerged slopes of the banks behind the breakwater. This construction is only half done, but it promises to be much cheaper than rock riprap. Whether or not it will be as effective is something that time will tell.

Two names have been suggested for this breakwater. One is the "Goose Lake Seawall", the other is the "Pelican Roost". A final selection of the appropriate name will have to wait until the unit has been reflooded and repopulated with carp. The unit is a favorite feeding area for pelicans but it remains to be seen whether these birds will utilize the perch provided.

Pasture Development. Work in the 460-acre East Pasture during the period has included crossfencing, additional plantings of sweet clover, and repair to eroded portions of the irrigation lateral banks. So far, this year, this pasture has received two irrigations.

To date two of the four proposed cross fences have been completed. These two fences will give us sufficient control over cattle to permit grazing this year on those portions of the pasture where the first plantings were made.

Last fall 232 acres of new ground was planted to winter grain - wheat and rye. During the first half of March sweet clover

was seeded in the stand of grain. Some additional seeding was undertaken in fields where poor stands resulted from plantings made a year ago this spring. The total area of sweet clover seeding was approximately 260 acres.

In addition to the seeding some repairs were required at badly eroded sections of the lateral banks. One rather extensive wash on the east bank of Lateral 336 had to be filled by dragline. Erosion in other spots was checked by the use of truck hauled riprap. This work had to be completed before irrigation could be started.

During the second irrigation two contour dikes washed out. The washing started in kangaroo rat burrows and went on from there. It is quite apparent that our rat control campaign will have to be continued.

By the end of the period the 100-acre Paiute Pasture was ready for the first irrigation. All five fields had been rough leveled and planted to barley. Final riprapping of structures had been completed and temporary culverts placed in the drain outlet.

Structure Work. Structure No. 17, the outlet to the Nutgrass Unit, was backfilled and riprapped during the early part of the period. This completes the work on this structure.

Work on the Lead Lake Canal Inverted Siphon (Structure No. 6) was started the first part of February. At that time it appeared quite possible that flood waters might inundate the structure site so a coffer dam was built completely around the excavation. About half of this dam was of truck hauled material, a mixture of gravel and dirt which will be used later for backfill.

At the present time we are nearing the end of the concrete work (see photo section). The foundation is complete, and the barrels and wingwalls have been poured for the west half.

Equipment. Except for the valve refacer which we overlooked in the last narrative, the following items of new, or "different", equipment have been received.

Hydraulic press, Dake, 70 ton. This was picked up as surplus for no charge except for freight. Parts needed to put it back in operating condition cost $176, but it is now as good as new. Received February 2, 1953.

Valve refacer, Sioux wet stone, received November 17, 1952.

Valve seat grinder, Sioux, received April 16, 1953. This replaces one which we picked up on surplus that was so badly worn as to be beyond repair.

Stake-dump, International, 3-ton, received January 27, 1953.

Dumptors, Koehring, 5-yard, received March 31, 1953. See photo section.

Power shovel, Byers, 1/2 yd., received January 6, 1953; on loan from Branch of Fisheries and has to be returned May 15.

Repair of Equipment. The following pieces of equipment received extensive repairs or major overhauls:

Chevrolet dump truck, I-16176, new short block installed.
Chevrolet dump truck, I-16041, complete motor overhaul.
HD-14, 1042, tractor, new track rails.
HD-14, 995, tractor, complete motor overhaul.
Byers shovel, motor overhaul, new crowd chain, sheave bushings and clutch bands.
International Truck-Transport, stationed at Malheur Refuge. Broke down while transporting Koehring Dumptors; towed 80 miles to refuge for motor overhaul, including a new piston, rings, valves and gaskets.

Minor repairs to the above and other equipment are too numerous to include.

B. Plantings

1. Aquatic and Marsh Plants

Bad weather at the end of the period prevented scheduled plantings of hardstem bulrush in the Sand Dune Area below Pintail Bay. These plantings will be made in the next period.

On April 28, 75 pounds of wild millet (Echinochloa crusgali), 20 pounds of Eleocharis quadrangulata and 50 pounds of alkali bulrush (Scirpus paludosus) seed was scattered from the airboat along shorelines of almost every major pond in the Sand Dune Area. Since conditions for seed germination in the Sand Dune Area are ideal and the soil appears to be the least alkaline of marsh soils in the Stillwater Marsh, the millet and four-square should make a go of it here, if anywhere.

2. Trees and Shrubs - None

3. Upland Herbaceous Plants - None

4. Cultivated Crops

In the East Pasture sweet clover was seeded with the grain planted last fall. Some additional clover seeding was undertaken in

fields where poor stands resulted from plantings made last year. The total area of sweet clover seeding was approximately 260 acres.

The 100 acres of Paiute Pasture was seeded to barley at the last of the report period. Because of the lateness of the season clover seeding in this pasture will be deferred until fall.

C. Collections - None

D. Receipts of Seed and Nursery Stock - None

IV ECONOMIC USE OF REFUGE

A. Grazing

Winter grazing has been light as usual. Forage at this season of the year is limited to the dead tops of weeds, saltgrass, marsh plants and the leaves of greasewood and shadscale which are licked up from the ground around the base of the plants. A diet of this kind will keep livestock alive but they lose weight on it consistently.

Five permits were issued for winter use covering 300 AUM's of cattle grazing and 235 AUM's of horse grazing.

B. Haying - None

C. Fur Harvest

The total muskrat harvest for the past season was 13,072. The muskrat pelts were divided on a 50-50 basis with the Government's share being shipped to Seattle Fur Exchange. Complete returns from the sales have not been received, however, the average estimated value of the pelts was only $0.98. Because of ice in February, trapping had to be extended into March. This late trapping resulted in a high proportion of damaged pelts, the amount of damage running over 50% at the last.

D. Timber Removal - None

E. Other Uses - None

V FIELD INVESTIGATION AND RESEARCH

A. Marsh Channels

As a step toward adequate nesting pair and brood counts, a number of channels were cut through cattail growth where it has formed barriers between important marsh lakes. These channels permit passage of the air-thrust boat into almost every major pond of the Stillwater Marsh west of the Swan Lake Dike. With these channels and the airboat it appears that we may be able to get a reliable brood count for the first time. In addition the channels will aid the State in their bass fishery investigation and open up new areas to fishing and trapping.

VI PUBLIC RELATIONS

A. Public Uses

1. Hunting Use - None

2. Fishing Use

The Churchill County Game Management Board decided to keep the marsh closed to bass fishing until May 3. Consequently, fishing during this period was restricted to catfish and bullhead. Due to consistently cool weather which resulted in low water temperatures fishing was, in general, poor.

3. Miscellaneous Use

Other uses by the public were slight. When the weather was good there was some Sunday sight-seeing. We did have one party of overnight campers that had somehow got off the highway to Austin and became hopelessly stuck in the sand at the north end of Pintail Bay Dike. They had given up and were preparing to spend the second night out when Supervisor Nygren found them.

B. Refuge Visitors

January	25-29	Howard Sargeant, Assistant Regional Refuge Supervisor, inspection of pastures and grazing lands and work on grazing program.
January	30	Frank Groves, Director, State Fish and Game Commission, tour of Stillwater development.
February	8	Frank Groves, Nils Nilsson and Fred Wright, representing the State Fish and Game Commission; Marvin Weishaupt, representing Truckee-Carson Irrigation

District; and Larry Chambers, representing sportsmen; tour of Stillwater Marsh and discussion of 1954 work program.

February 10 — Louis Oaklay, James Fox, Billy Giles, Boy Scout visitors.

February 18 — Robert Boone, Branch of Federal Aid, Portland; Nils Nilsson, State PR Coordinator; and Fred Wright, State Waterfowl Technician, tour of Stillwater Marsh and pasture areas.

March 3-4 — Ray Glahn, Service Pilot-Biologist, Sacramento, in for waterfowl census and aerial photos.

March 16 — Tom B. Murray, Director, Idaho Fish and Game Commission, tour of Stillwater development.

March 17 — Ray Glahn, Service Pilot-Biologist, Sacramento, in with airplane for aerial waterfowl census.

March 25 — Nils Nilsson, PR Coordinator, and Fred Wright, inspection of Stillwater construction.

March 30 — Noel Cagle, Malheur Refuge, delivered Koehring Dumptors.

March 31 — Wallace Rabenstine, State Fish and Game Commission Engineer, and Fred Wright, inspection of boat landing and discussion of proposed improvements.

April 10-11 — Ray Glahn, Service Pilot-Biologist, Sacramento, in for aerial waterfowl census.

April 17 — Ray Glahn, Service Pilot-Biologist, Sacramento, in for discussion of proposed spraying program.

April 21 — Lloyd Ramelli, Refuge Manager, Crescent Lake Refuge, Nebraska, tour of Stillwater development.

C. Refuge Participation

January 2 — Biologist Marshall gave a talk, illustrated with slides, on Stillwater development to Oregon Audubon Society, Portland.

January 7 — Refuge Manager Giles and Biologist Marshall attended meeting on waterfowl depredations. Present were representatives of Truckee-Carson Irrigation District, Farm Bureau, State Fish and Game Commission and Game Management Agent, Howard Cantrell.

February 7	Refuge Manager Giles with Mr. MacDonald, Regional Refuge Supervisor, Portland, and Frank Groves, Director Nevada Fish and Game Commission, attended Truckee-Carson Irrigation District Board meeting relative proposed sale of land in Stillwater Marsh.
February 14	Biologist Marshall gave talk, illustrated with slides, at Seventh Day Adventist Church.
March 3	Refuge Manager Giles conducted a meeting of Management Area graziers. Number attending was 9 plus representative from Truckee-Carson Irrigation District Board of Directors.
March 24	Biologist Marshall gave a talk, illustrated with slides, to Fallon Rotary Club at noon. At 7:00 p.m. Marshall also gave an illustrated talk to the Rotary Club at Yerington, Nevada
March 26	Biologist Marshall gave illustrated talk to Sportsmen's group at Carson City.
April 7	Refuge Manager Giles attended Truckee-Carson Irrigation District Board Meeting for discussion of water requirements and grazing administration.

D. Hunting - None

E. Fishing Success

Discussed under Section VI-2, Fishing Use

F. Violators - None

VII OTHER ITEMS

Refuge Manager Giles made a trip to the Desert Game Range, Las Vegas, Nevada, on January 12 to take delivery of surplus tires and returned to Stillwater January 14.

Refuge Mechanic Arthur V. Huff went to the Sacramento Refuge on January 26 and brought back to Stillwater the new International stake-dump truck.

We had borrowed an air-thrust boat from Tulare, California, for use in our botulism program last fall and it was to be returned to its home station at the Salt Plains Refuge, Jet, Oklahoma. David Marshall, Biologist, left with the boat, towed by our Willys station

wagon, on January 26 and returned to Stillwater February 6.

The week of February 2 was spent in the Regional Office, Portland, by Refuge Manager Giles, conferring on the proposed 1954 work program.

Refuge Clerk, Illa E. Cress, attended the Clerk's Conference held in the Regional Office, Portland, February 9 through 13.

The dumptors that were delivered to Stillwater via the Malheur truck-trailer unit needed a flagman. Mr. Giles, Refuge Manager, met the unit at Blackfoot, Idaho, March 28 and acted as flagman until the unit broke down on March 30 at Lovelock then brought the driver, Noel Cagle, into Fallon. Cagle, accompanied by Mechanics Olano and Huff, Maintenance Supervisor Nygren and State employee E. J. Brooks, returned to Lovelock on April 1 and towed the truck-trailer and drove the dumptors into Fallon.

Mechanic Huff attended the GSA Equipment Meeting in San Francisco April 15 through 17.

At the end of the period the State construction crew, Pittman-Robertson employees on the cooperative development program, consisted of the following:

1 - Motor Patrol Operator
2 - Dragline Operators
1 - Rodman-Chainman
3 - Oilers
1 - Elevating Grader Operator
2 - Tractor Operators
1 - Concrete Crew Foreman
1 - Irrigator
3 - Laborers
3 - Truck Drivers

ANAHO ISLAND NATIONAL WILDLIFE REFUGE

ANAHO ISLAND

No trips were made to this refuge during this period.

FALLON NATIONAL WILDLIFE REFUGE

FALLON REFUGE

See various references to Pelican Island in main body of this narrative report. Pelican Island, itself, is on the Management Area, but the marsh at Pelican Island is continuous with that of the Fallon Refuge.

It would be impossible to separate waterfowl usage on the Fallon Refuge from Pelican Island, so that the refuge cannot be handled as a separate unit for report purposes. Actually, there is little real need for any special discussion of the Fallon Refuge. The entire refuge area is dry except in long-water years.

WINNEMUCCA NATIONAL WILDLIFE REFUGE

WINNEMUCCA LAKE REFUGE

Winnemucca Lake was visited on Sunday, April 26. As might be expected, after a dry winter, the lake bed was dry.

One interesting sidelight to the visit should be mentioned for its historical interest. The refuge manager was accompanied by his family and a picnic lunch was eaten at the foot of a ridge near the west lake shore. While waiting for lunch to settle the children scattered about the nearby tufa outcrops on a rattlesnake hunt. One of them spied some boxes back in a crevice, and the trip ended with the discovery of treasure instead of snakes.

The boxes were a cache left by a commercial fisherman who had fished the lake for the Lahontan cut-throat trout that existed there before the lake went dry. On one of the boxes was found this pencilled note: "This belongs to G. H. Derby - he is coming back after it - please let it alone". The age of the cache could be determined from a newspaper, used for wrapping, dated March 24, 1889.

A grave was found in another cave near the cache and human bones were scattered about. Whether these were the remains of Mr. Derby could not be ascertained but in all likelihood they were Indian.

The cache was not on the refuge but was just outside, on the Paiute Indian Reservation where the Reservation boundary roughly coincides with the lake shore.

All of the significant material found in the 5 boxes in the cache has been donated to the Nevada State Museum, at Carson City, except for a few items in poor shape which were not saved. Two large boxes, one containing a gill net and the other a sein, were left at the site.

The following list is a copy of the entries made in the Museum's catalog:

Gunpowder can containing BB shot
Can of ground pepper bearing Folger Co. label
Newspaper "The Sunday Chronicle" (San Francisco) dated March 24, 1889
Scales, "Frary's Improved Spring Balance"
Shears, handles bound with cord, sheep shearing
Coffee Grinder, mounted on wood block
Oar lock
Oar lock fitting
Can of Prussian blue paint, unopened

Tooth powder box containing bits of wax
Fishing spinner - 5 inch
Fishing spinner - 4-1/2 inch, inner surface painted red
Fishing spinner - 2 inch, with colored beads, inner surface painted red
Floats for fish nets, wood
Shuttles to repair fish nets
Fish line wrapped on wood holder
File, 10-1/2 inch, wood handle
File, 8-1/4 inch, shell case handle
Shears, small, raised handle
Soap, homemade, triangular piece
Pulley
Sinker, lead
Ramrod, for cleaning pistol
Sulphur matches (1200) unopened package
Sulphur matches, 2 small blocks
Punch for shotgun rods
Tools for reloading shells, bear U.S. Stamp identical sign
Fishhooks, in wood box, manufactured by London Needle Co.
Molds for making fish spinners (2), in box 11-3/4" x 5-1/2"
Cartridges and cartridge cases (18), in box labeled "Centre-Brimmed Metallic Cartridges adapted to U.S. Springfield Rifle Muskets" caliber .45-70
Cartridges and cartridge cases, (14) in box without lid, caliber .45-70
Bone, human (humerus) found near cache
Bullets, pistol (6), caliber .41
Sinkers, round lead (14)

This report was prepared by LeRoy W. Giles, Refuge Manager and David B. Marshall, Biologist.

Photography credit is given Mr. Marshall for the pictures included herein.

The following NR forms are not applicable to the Area through this report period:

NR 3 - Big Game
5 - Disease
6 - Fish
7 - Plantings
8 - Cultivated Crops
9 - Collections and Receipts
10 - Haying and Grazing
11 - Timber Removal

Submitted May 13, 1953

LeRoy W. Giles

LeRoy W. Giles
Refuge Manager

APPROVED:

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WATERFOWL

REFUGE Stillwater W. M. Area MONTHS OF January 1 to April 30, 1953

(1) Species	(2) First Migrants Seen		(3) Peak Concentration		(4) Last Migrants Seen		(5) Young Produced		(6) Estimated Waterfowl Days
Common Name	Number	Date	Number	Date	Number	Date	Broods Seen	Estimated Total	
1. Swans:									
Whistling swan			1,300	1/22	250	3/3			77,813
2. Geese:									
Canada goose			1,200	1/22					61,949
Cackling goose									
Brant									
White-fronted goose									
Snow goose			1,300	3/17	7	4/9			27,297
Blue goose									
3. Ducks:									
Mallard			1,700	2/25					149,789
Black Duck									
Gadwall			5,000	2/25					203,111
Baldpate			1,400	2/25					29,616
Pintail			35,500	2/25					1,033,093
Green-winged teal			16,100	4/1					995,774
Blue-winged teal									
Cinnamon teal			3,000	4/30					51,191
Shoveller			10,400	4/9					588,173
Wood duck									
Redhead			1,000	4/30					14,802
Ring-necked duck									
Canvas-back			550	1/8					24,234
Scaup			75	2/26					3,864
Golden-eye			35	3/12	1	4/9			771
Buffle-head			100	2/17					5,895
Ruddy duck			2,200	4/1					115,231
Hooded Merganser			10	1/22					190
American Merganser			900	2/25	28	4/1			38,873
4. Coot:			12,800	2/25					947,811

Form NR-1
3-1750
(June 1949)

(over)

SUMMARIES

Total Production:

Geese_____

Ducks_____

Coots_____

Total waterfowl ~~usage~~ days use during period 4,369,477

Peak waterfowl numbers 83,462

Areas used by concentrations Pelican Island, Pintail Bay

Principal nesting areas this season_____

Number of Inventories this Period - 12
Percentage of refuge covered - 20

Reported by David B. Marshall

INSTRUCTIONS

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance.

(2) First Seen: The first refuge record for the species during the season concerned in the reporting period, and the number seen. This column does not apply to resident species.

(3) Peak Concentration: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned in the reporting period.

(5) Young Produced: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(6) Total: Estimated total number of the species using the refuge during the period. This figure may or may not be more than that used for peak concentrations, depending upon the nature of the migrational movement.

Note: Only columns applicable to the reporting period should be used. It is desirable that the Summaries receive careful attention since these data are necessarily based on an analysis of the rest of the form.

61355

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge Stillwater W. M. Area Months of January 1 to April 30 1953

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Eared Grebe	1	2/25	50	4/30						50
Western Grebe			400	4/30						400
Pied-billed Grebe			400	4/30						400
White Pelican	2	2/10	4,000	4/9						5,000
Double-crested Cormorant			150	4/14						200
Great Blue Heron			400	4/30			2			400
American Egret			4	4/30						4
Snowy Egret			200	4/30			3			200
Black-crowned Night Heron			500	4/30			3			500
American Bittern			50	4/30			3			50
White-faced Glossy Ibis			100	4/30			1			100
Sora			200	4/30						200
II. Shorebirds, Gulls and Terns:										
Snowy Plover	7	4/21								25
Killdeer			200	4/30						300
Black-bellied Plover	2	4/9	20	4/28						50
Greater Yellow-legs	4	3/12	30	4/9						100
Unidentified Peeps	47	4/9	600	4/21						1,000
Dowitcher	200	3/3	1,000	4/1						2,000
Marbled Godwit	5	4/21	5	4/21						5
Avocet	2	1/22	10,000	4/11						10,000
Black-necked Stilt	1	4/1	300	4/30						300
California Gull			100	4/30						100
Ring-billed Gull			200	3/17						200
Forester's Tern	5	4/30								5
Caspian Tern	3	4/28								3

(over)

(1)	(2)	(3)		(4)		(5)	(6)
III. Doves and Pigeons:							
Mourning dove							
White-winged dove							
IV. Predaceous Birds:							
Golden eagle		20	3/3	1	4/21		20
Duck hawk							
Horned owl							
Magpie							
Raven							
Crow							
Prairie Falcon		4					4

Reported by David B. Marshall

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

1613

Refuge Stillwater W. R. Area Months of January 1 to April 30, 1953

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked Pheasant									10	Practically all intermittent use of Area
California Quail									50	Practically all intermittent use of Area

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge Stillwater W. M. Area Year ending April 30, 1953

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs						(5)
								Share Trapping						
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re-stocking	For Re-search	Permit Number	Trapper's Share	Refuge share	Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	Total Population
Muskrat	8,000 acres marsh vegetation			13078				T5355 T5356 T5357 T5358	2017 1968 1537 1014	2017 1968 1537 1014	6536			10,000
Coyote	130,000 acres desert and marsh border	8,666												15

* List removals by Predator Animal Hunter

REMARKS:

Reported by _____

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

(1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)

(2) DENSITY: Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headingslisted.

(4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.

(5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.

REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

116007

3-1570
NR-8a

REFUGE GRAIN REPORT

Refuge Stillwater W. M. Area Months of January 1 thru April 30 1953

(1) VARIETY	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED USE		
				TRANS-FERRED	SEEDED	FED	TOTAL		SEED	FEED	SURP.
Barley	293	0	293		230		230	63	63		0

(8) Indicate shipping or collection points

(9) Grain is stored at Headquarters Yard, Stillwater Refuge

(10) Remarks

NR-8a REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lbs., Corn (ear)—70 lbs., Wheat—60 lbs., Barley—50 lbs., Rye—55 lbs., Oats—30 lbs., Soy Beans—60 lbs., Millet—50 lbs., Cowpeas—60 lbs., and Mixed—50 lbs. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

(1) List each type of grain separately: Corn, wheat, proso millet, etc. Include only domestic grains; aquatic and other seeds will be listed on NR-9.

(3) Report all grain received during period from all sources, such as transfer, share-cropping, or harvest from food patches.

(4) A total of Columns 2 and 3.

(6) Column 4 less Column 5.

(7) This is a proposed breakdown by varieties of grain listed in Column 6.

(8) Nearest railroad station for shipping and receiving.

(9) Where stored on refuge: "Headquarters grainary", etc.

(10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

M-462. Evidence of a late spring. This snow scene was taken from the Nutgrass Road the last day of the report period. Resulting mud temporarily halted truck operations. 4/30/53

M-459. Aerial view looking north, of the East (Alkali) Flat. Water is result of both pasture irrigation and surplus dumped down East Canal. This shows what a small portion of the flat can be flooded. 3/3/53

M-455. Aerial view, looking north across portion of Stillwater Marsh that lies below Canvasback Club. Mouth of Hunter Drain and west end of Lead Lake Canal in right foreground. 3/3/53

M-450. Aerial view looking northeast showing how the waters of the Stillwater Marsh and Pelican Island Marsh are joined in the Carson Sink. Flooded Sand Dune Area in upper right. Northwest marsh ponds in lower right. 3/3/53

M-443. Marsh view in Swan Lake Area. This is one of our best ponds, having excellent hardstem bulrush-open water intersparsion. Winter scene. 2/25/53

M-461. Many areas of the Stillwater Marsh which were formerly dense cattail tangles now look like this. Muskrats have reduced much of it to stubs or it has simply died out from high water or unknown causes. 3/5/53

M-462

M-463

These two photos show steps in Paiute Pasture development.
M-462 - Native greasewood cover with dikes and ditches in.
M-463 - brush burned and cut and fill stakes in. 3/6/53

M-464

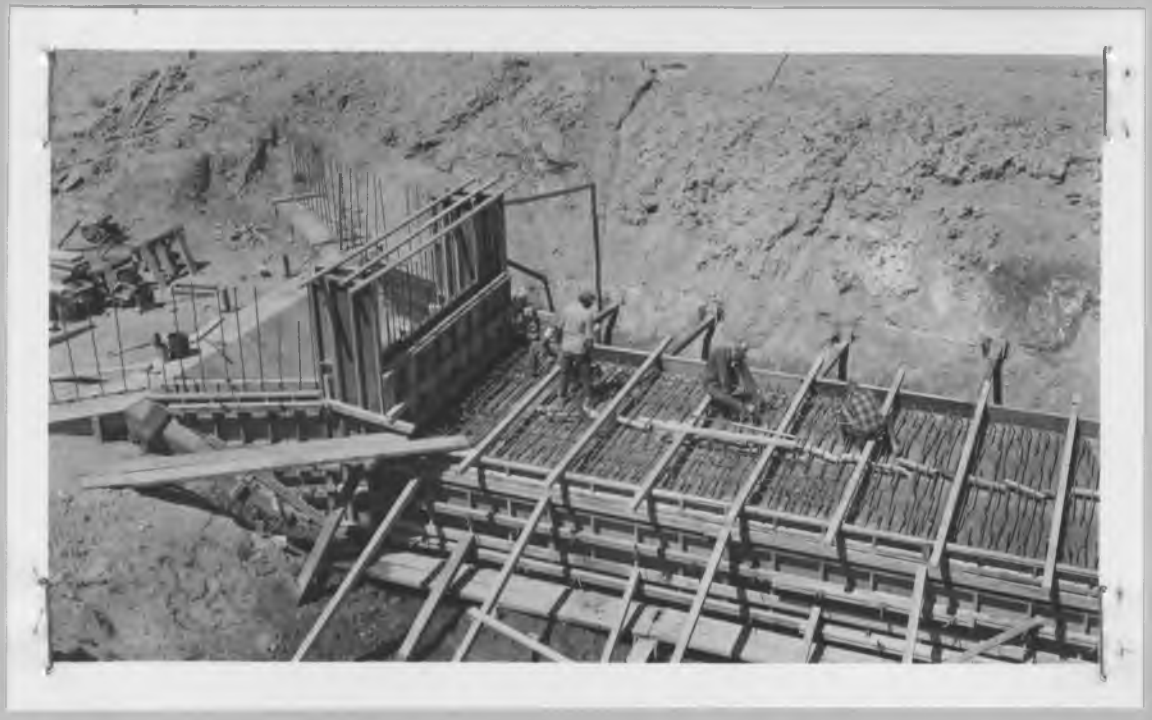
M-465

Paiute Pasture development continued from preceeding page.
M-464 - HD-14 tractor and carryall rough leveling.
M-465 - Ready for discing and seeding. 3/6/53

M-442. Part of Structure 6 (Inverted Siphon) excavation showing depth of hole and muck. 2/25/53

M-441. Lorain dragline excavating for Structure 6. Coffer dams surround excavation. Lead Lake Canal left background. 2/25/53

M-467. Structure 6 with part of reinforcing steel in place. 3/12/53



M-473. More steel going into Structure 6. View shows west half of structure only. 4/21/53

M-477. Breakwater of rough lumber put up along bank of Lead Lake Canal where it crosses pond area near Structure 6. This is far cheaper than rock and should hold until vegetation becomes established. 4/21/53

M-478 and M-479. Two views of one of the two Koehring Dumptors obtained from the Forest Service in Montana. The bed of this machine is in front and the operator and motor are situated side by side in the rear. Steering is accomplished by the rear, smaller wheels. Drive is on the larger front axle, which has no springs. Machine is equally slow in traveling forward or backward. It has the same three speeds in either direction with a top speed of 18 mph. Capacity is 5 yards. 4/29/53

M-471 and M-472. Briscoe ditch re-sloper mounted on D-7 Cat. This machine belongs to the Truckee-Carson Irrigation District and is shown here knocking out willows and other vegetation along one of the District's canals. M-471 - front view and M-472 - rear view. 3/13/53